

REMARKS

The specification has been amended to insert the application numbers of the identified co-filed applications.

The claims have been amended as follows:

Claim 1: Support is at page 7, lines 26-31; and page 7, lines 11-16, and original claim 21. Claim 21 has been canceled.

Claim 2: This limitation is inserted to distinguish from the implied "two or more" comprising type claim language on the basis of claim differentiation. Otherwise, claim 2 would not limit claim 1. Figure 1 shows exactly two such layers.

Claim 35: Support is at page 2, line 16 and page 10, line 16. Note that, by definition, total light transmission is equal to the sum of the diffuse transmission and the specular transmission so that the total transmission must always be at least as much as the diffuse transmission.

Applicants wish to thank the Examiner for the courtesy of a telephone interview on Wednesday May 12, 2004 at 3:45 pm. The interview related to this application and also to Serial No. 10/017,002. The discussion focused on claim 1 of this application and the rejection pursuant to 35 USC 103 based on Allen et al. and the similar rejection of claim 1 based on Onderkirk et al. (U.S. 5,825, 543) in the related case. Both Allen et al. and Onderkirk et al. relate to inventions by the same general group of inventors and are directed to reflective polarizer construction. Present at the interview were inventors Cheryl Brickey, Mike Brickey, and Rob Bourdelais, in addition to the undersigned and Examiner Marc Patterson. Provided by hand delivery to the Examiner in advance of the interview were sample films as described in the attached Declaration of Cheryl J. Brickey that the Examiner is respectfully requested to include with the attached Declaration.

As explained by Ms Brickey, the Allen and Onderkirk optical elements are reflective polarizers. The element of Allen/Onderkirk is comprised of a continuous phase of a given refractive index and a discontinuous phase having in one direction a refractive index similar to the continuous phase and in the orthogonal direction a refractive index different from the continuous phase. This has the effect of being transparent to light of one polarization and reflective

of light of the orthogonal polarization. Since at least half of the light is reflected, the element cannot satisfy the light transmission efficiency of the present claims. Further, the presence of air voids would serve to prevent some of the desired light from being transmitted, further increasing the reflection.

The present amendment serves to further delimit the covered diffusers to those having specified transmission levels. Not only must there be a variation of at least 28% in the average length or frequency between the layers but there also is a resulting improvement in the diffuse light transmission efficiency of at least 10% and a diffuse light transmission efficiency of at least 80%. Table 1 of the application demonstrates an improvement of this level or higher.

According to the Summary of the Invention, the Allen reference is directed to a reflective film and particularly to a reflective polarizer. A reflective polarizer is arranged so that it transmits the portion of light that is correctly polarized and reflects the other half of the light in an attempt to reorient that light and obtaining a further portion of the light that is desirably polarized after reflection. Through the use of birefringent materials such as organics of directionally dependent refractive index, the film will transmit light polarized in one direction but reflect light polarized in the orthogonal direction. Since Allen only transmits light of one polarization and reflects the rest, the maximum transmission is 50%, and this would be further reduced by other inefficiencies in the optical element.

Referring to the results shown in the table at page 6 of the Declaration, the present invention provides a much higher total transmission, diffuse transmission, and diffuse transmission efficiency than does the reflective polarizer of Allen or Onderkirk.

Allen suggests at col. 22 that there may be voids created and that they may back-filled. However, the patentee notes that voids are generally undesirable because they interfere with the reflective polarization and lower the efficiency of the polarizer. See Col. 2/62 to 3/13. The film of Allen does not suggest multiple layers having voids differing in average length or frequency whether it be a 1% variation or a 28% variation. Having multiple layers varying to this extent is essential to the present invention, as more fully described at page 5, lines 7-18 of the specification.

In summary, claim 1 is distinguished over Allen at least by the variation in average length or frequency between layers being a minimum of 28 % by the multilayer achievement of a minimum 10% improvement over a corresponding single layer of the same thickness, and by the specified minimum diffuse light transmission efficiency.

The Examiner relies on Allen's disclosure at col. 22, lines 4-14, as evidence that Allen contemplates a frequency that varies between at least two layers. While Allen does teach that the dimensions of the voids may be controlled, there is no suggestion that there be two or more layers that have different frequencies nor of any advantage that might flow therefrom. A generic teaching that the void volumes might be controlled provides no motivation for one to control the variation between multiple layers in a particular way as delimited in the present claims to get a result that Allen is silent about.

The Examiner's reliance on col. 22, lines 41-63 is misplaced. While multiple sheets are suggested, it is not suggested that the sheets contain multiple layers with voids or that there be variations in the void lengths or frequencies between layers. The heart of Allen's invention is having two immiscible phases of material and the presence of voids is an aside. The immiscible phases are what enable the essential reflection he claims. Thus, it cannot be said that there is any clear disclosure of multiple voided layers, especially those having variable length or frequency voids. Applicants cannot conceive of any reason why one would expect anything other than a detriment to employ the key limitations of Applicants invention in the reflective polarizer of Allen/Onderkirk, and the present invention is therefore unobvious over these citations..

Turning to new claim 35, this limitation requires a total light transmission of at least 65% at 500nm. Allen appears to specularly transmit, at most, 50% of the light (which is polarized in the right direction) to be diffused.

Turning to other matters, Applicants acknowledge with appreciation the Examiner's withdrawal of the previous rejections of Claims 1-31 pursuant to 35 USC 112.

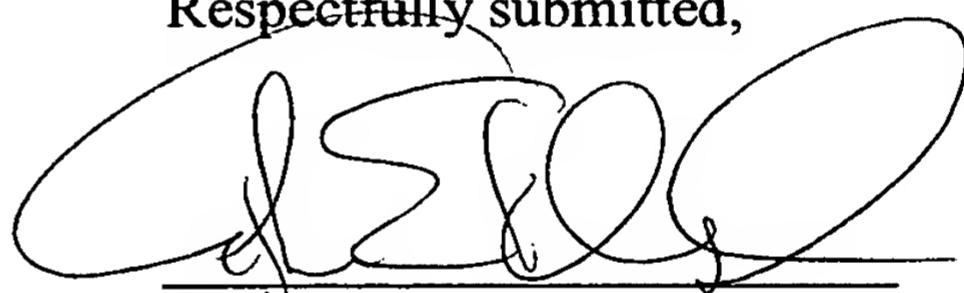
Claims 1-31 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. With regard to Claim 1,

the phrase ‘length of the microvoid’ is indefinite according to the Examiner, as it is unclear if the voids of each layer are of the same length. For purposes of examination, it was assumed that the voids are not the same length, and the ‘length’ therefore defines an average size.

The present amendment serves to resolve any concerns in this regard. The word “average” has been inserted in the application to modify the “length”. It is readily understood by one skilled in the art that the stretching or orienting process for forming voids provides a range of sizes and that the average dimension is intended. The specification contains numerous references to average bead sizes and thus the voids created by the beads would be expected to be “average” as well. See, for example, page 30/31; 31/1 and 31/29, among others.

It is believed that this amendment places the application in condition for allowance or in better form for appeal. In view of the foregoing amendments and remarks, the Examiner is respectfully requested to withdraw the outstanding rejection and to pass the subject application to Allowance.

Respectfully submitted,



Attorney for Applicant(s)
Registration No. 25,518

Arthur E. Kluegel/dlm
Rochester, NY 14650
Telephone: 585-477-2625
Facsimile: 585-477-1148